



HURLL NU-WAY PTY LTD

PO BOX 339 GLEN WAVERLEY VIC 3150
14 ARISTOC ROAD GLEN WAVERLEY VIC 3150
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ACN 000 014 639
ABN 80 000 014 639

SECOMAK AIR KNIVES

INSTALLATION AND OPERATION HINTS AND RECOMMENDATIONS

GENERAL

Two sizes of air knives are supplied for use on low pressure air supply usually via a high speed centrifugal fan / blower. Side channel blowers may be used with the small profile knife only.

The AK654 [Drawing # SEC001] air knife may be described as a 75mm [3"] diameter knife and is supplied in lengths from 100mm up to 2000mm. For lengths greater than 1000mm, air is fed in to both ends of the knife. Shorter knives have air feed at one end only. The air entry spigot/s are 76mm diameter, usually plain for a hose clamp, or threaded to order [2 ½" BSP].

The AK705 [Drawing # SEC016] air knife may be described as a 25mm [1"] diameter knife and is supplied in lengths from 100mm up to 500mm only. Air is fed in to one end only via a 25mm plain spigot.

Supply air hose for all air knives shall be of smooth internal bore. Wire wound hose is generally unsuitable. Standard supply of hose is a heavy plastic food grade type with low pressure drop. In cases where extreme conditions apply, flexible steel supply hose is available. Alternatively rigid plastic or stainless steel tubing may be used.

Multiple AK654 air knives are generally connected with aluminised steel 'Y' pieces and short lengths of interconnecting hose [Drawing # SEC002A]. Purpose made manifold assemblies may also be supplied.

High speed centrifugal fans provide a relatively flat pressure / volume curve and can be used over a wide range of knife lengths without alteration to the fan. Knife air discharge gap may be adjusted as detailed below provided the required air volume stays within the fan range. High speed centrifugal fans must not be allowed free discharge or they will overload. To reduce the risk of overload, lockable butterfly or quarter turn valves may be fitted to the blower discharge to throttle the air flow to the knives.

Heater units may be fitted between the blower and air knives to provide hot air if required [Drawing # SEC006]. The design of the air knife usually provides air about 10° above ambient.

A member of the **ENERTECH** group

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KNIFE INSTALLATION

Due to the specific nature of each application, knives are usually supplied as a plain unit without any mounting components, however a pair of end brackets may be supplied to order [Drawing # SEC005]. When installed with end brackets, the bolt in the plain end of the air knife allows the knife to be locked at the desired angle. The location and angling of the knives will generally be recommended for each specific application, but some general applications are detailed below.

Conveyors:-

Air knives should be installed across the conveyor belt at an angle of about 85° with the discharge blade pointing towards the upstream [approaching] side of the conveyor. The discharge blade should be at an angle of about 30° above horizontal and 20-25mm above the conveyor surface or top of the material being conveyed. [Drawing # SEC021].

Bottles and cans [sides only]:-

Air knives are installed both sides of the bottle line. Subject to the line speed, two or three knives will be required at each side. The knives should be installed at an angle of 75-85° from horizontal and the knife blade pointing towards the direction of flow at an angle of about 80° from flow line.

Can tops & flat jar tops*:-

Installation is similar to conveyors. Usually for high speed single can lines, several short AK705 [small profile] knives will be used.

**Crown tops are generally best dried with Secomak/Beck compressed air nozzles.*

Bottle tops [wine]:-

Short small profile knives are used either side of the bottle section to be dried. Angles as bottle sides above.

A set of application sheets is available highlighting many different uses of Secomak air knife product. These are available on request from Hurll Nu-Way.

AIR DISCHARGE

Both knife profiles have an adjustable air discharge gap. For the AK654 knife, the standard discharge gap is 2mm and for the AK705 it is 1.5mm. The gap is adjusted by slackening the screws in one blade only then setting the gap by a feeler gauge before tightening the screws. Air discharge volume is directly proportional to the blade gap and is detailed in the table below. Decreasing the air gap will increase [lengthen] the blade effect slightly but in all cases the distance from blade to surface should not be more than 25mm and best results will be a case of trial and error. A distance of 20mm is recommended as a starting point.

LENGTH OF AIR KNIFE mm	AIR VOLUME REQUIRED m ³ /hr	AIR PRESSURE IN WG	AIR PRESSURE PSI	DISCHARGE EXIT VELOCITY m/sec
100	60	55	2	167
200	120	55	2	167
300	180	55	2	167
400	240	55	2	167
500	300	55	2	167
1000	600	55	2	167
AIR GAP = 2mm				

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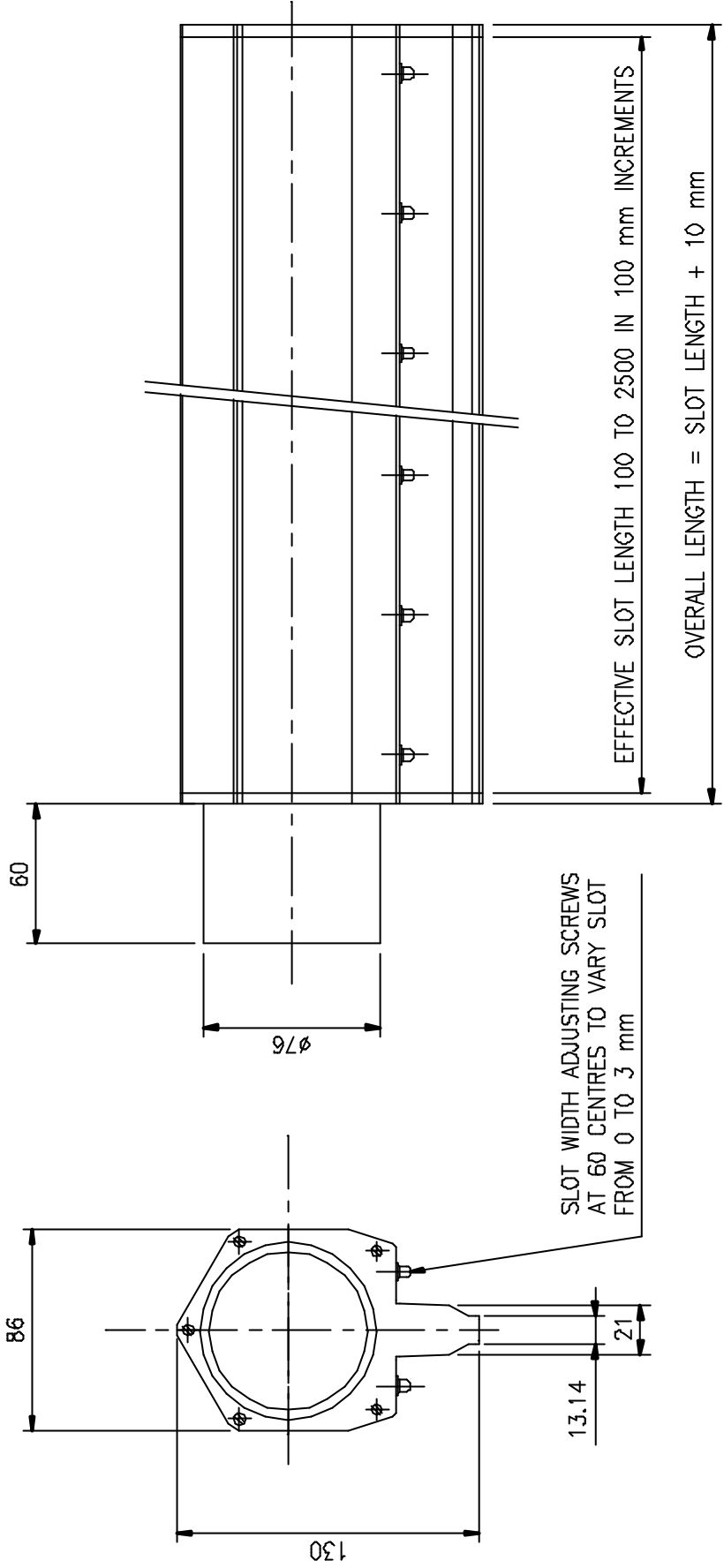
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LENGTH OF AIR KNIFE mm	AIR VOLUME REQUIRED m ³ /hr	AIR PRESSURE IN WG	AIR PRESSURE PSI	DISCHARGE EXIT VELOCITY m/sec
100	45	55	2	167
200	90	55	2	167
300	135	55	2	167
400	180	55	2	167
500	225	55	2	167
1000	450	55	2	167
AIR GAP = 1.5mm				

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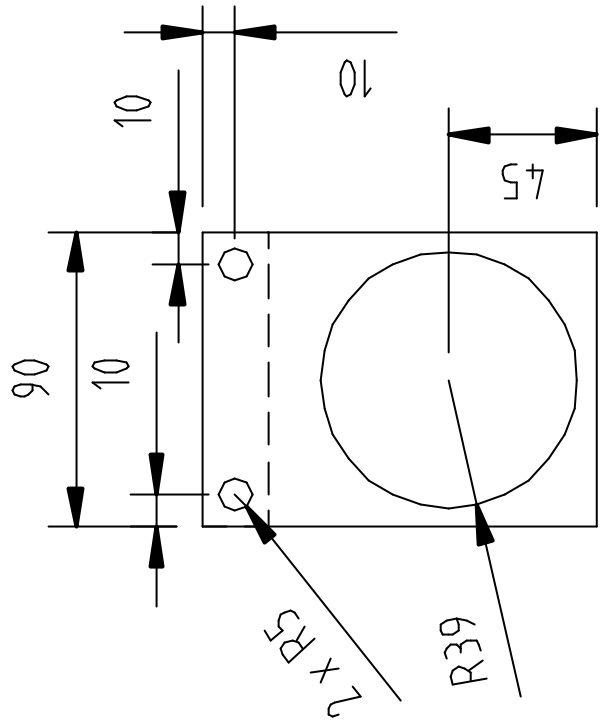


NOTE : AIR INLETS FOR AIR KNIVES UP TO 1 METRE LONG ARE NORMALLY LOCATED AT THE END OF THE AIR KNIFE. LONGER KNIVES HAVE AIR ENTRY AT BOTH ENDS

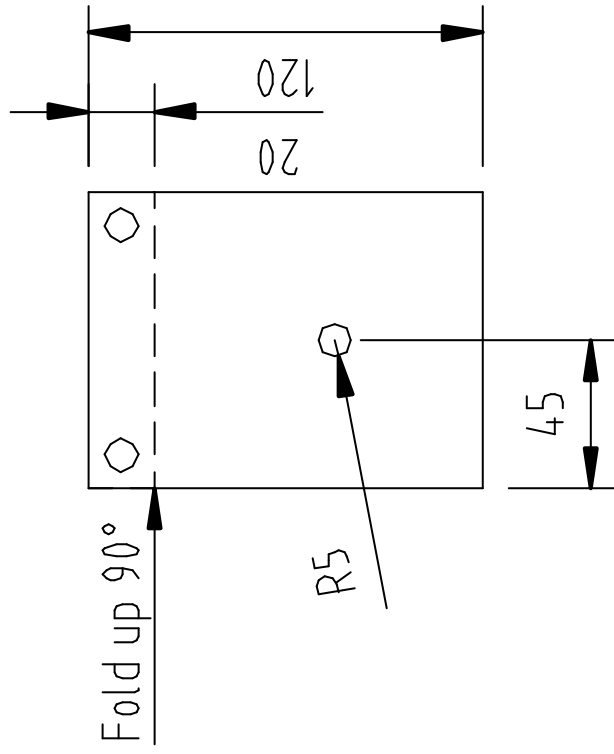
MATERIAL : ALUMINIUM ALLOY ANODIZED A25, FIXINGS STAINLESS STEEL.

THRU ANGLE PROJECTION		SCALE: NTS	
CUSTOMER: CUSTOMER		DRAWN: PRM	CKD: CKD
TITLE: OUTLINE-DRAWING		DATE: DATE	APPR: APPR
MODEL-AK654		PROJECT No.: PROJECT	REV. No.
HURLL NU-WAY		A3 SEC-001 7	
HURLL NU-WAY PTY LTD 14 ARISTOC ROAD, GLEN WAVERLEY VIC. 3150 P.O. BOX 358, GLEN WAVERLEY, VIC. 3150 PH. 03 9561 2100 ... FAX. 03 9560 8992 E-MAIL ... mail@hurll.com.au		CUSTOMER: CUSTOMER TITLE: OUTLINE-DRAWING MODEL-AK654	
		PRM	09.2.06
DOUBLED ROW OF SLOT ADJUSTING SCREWS ETC DRAWING WAS FILED AS 'AK654outline'		JMS	15.5.01
REVISION		BY	DATE

A



B



MATERIAL:- 3mm Aluminium
 CUT SIZE:- 120 x 90 mm
 QUANTITY:- 1 x A & 1 x B per Knife Assembly upto 1 metre
 QUANTITY:- 2 x A per Knife Assembly > 1 metre

THIRD ANGLE PROJECTION

No.	REVISION	BY	DATE	 <p>HURLL NU-WAY HURLL NU-WAY PTY LTD ACN 000 014 639 14 ARISTOC ROAD, GLEN WAVERLEY VIC. 3150 P.O. BOX 339, GLEN WAVERLEY, VIC. 3150 PH. 03 9561 2100 ... FAX. 03 9560 8992 E-MAIL ... mail@hurll.com.au</p>	CUSTOMER: VARIOUS TITLE: AIR KNIFE BRACKET END PLATES A & B	SCALE: ---	CHKD.: .
						DRAWN: PRM	APPR.: .
						DATE: 11/1/11	PROJECT No.: ----
							DWG. No. SEC005
						A4	1

KNIFE LOCATION ABOVE CONVEYOR OR SHEET MATERIAL TO BE DRIED
[SIMILAR ARRANGEMENT FOR SIDE DRYING]

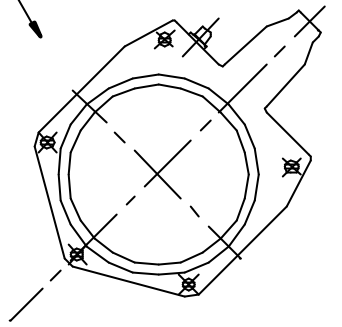
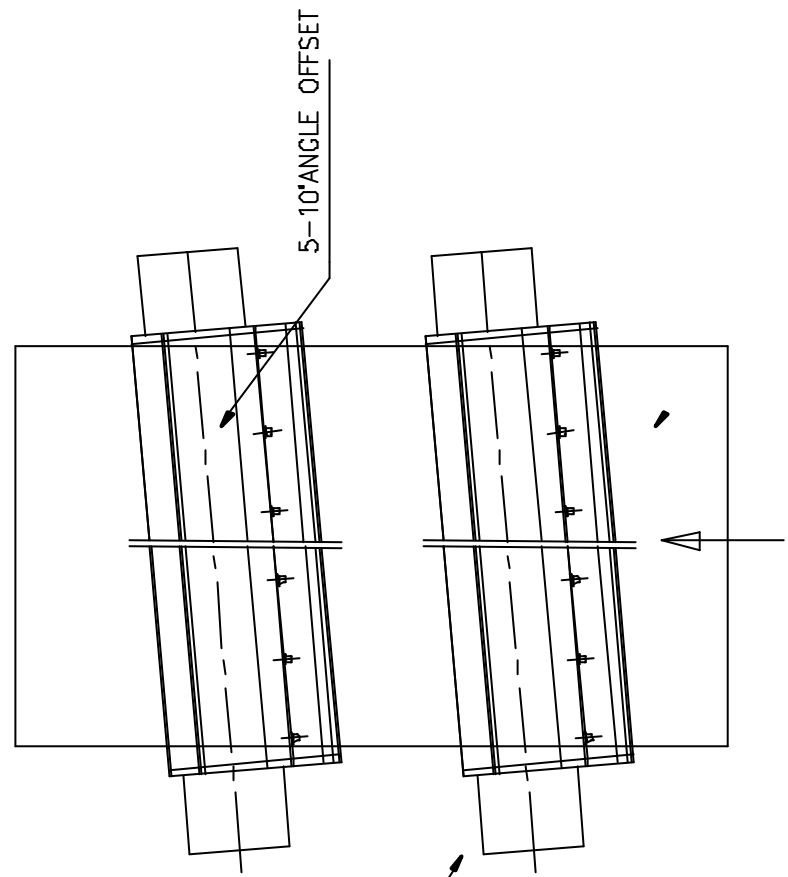
AIR INLET AT ONE END ONLY FOR KNIVES LESS THAN 1 METRE

SECOND AND ADDITIONAL KNIVES SUBJECT TO LINE SPEED

KNIFE AT 45 - 60°

15-25mm BLADE TO SURFACE

DIRECTION OF BELT OR MATERIAL TRAVEL



THIRD ANGLE PROJECTION

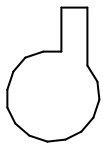
SCALE: 1:1 TO SCALE	CKD: CKD
DRAWN: PRM	APPR: APRR
DATE: JAN2113	PROJECT No.: PROJECT
DWG. No. A4	REV. A

CUSTOMER: CUSTOMER
TITLE: KNIFE_LAYOUT

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REVISION	BY	DATE

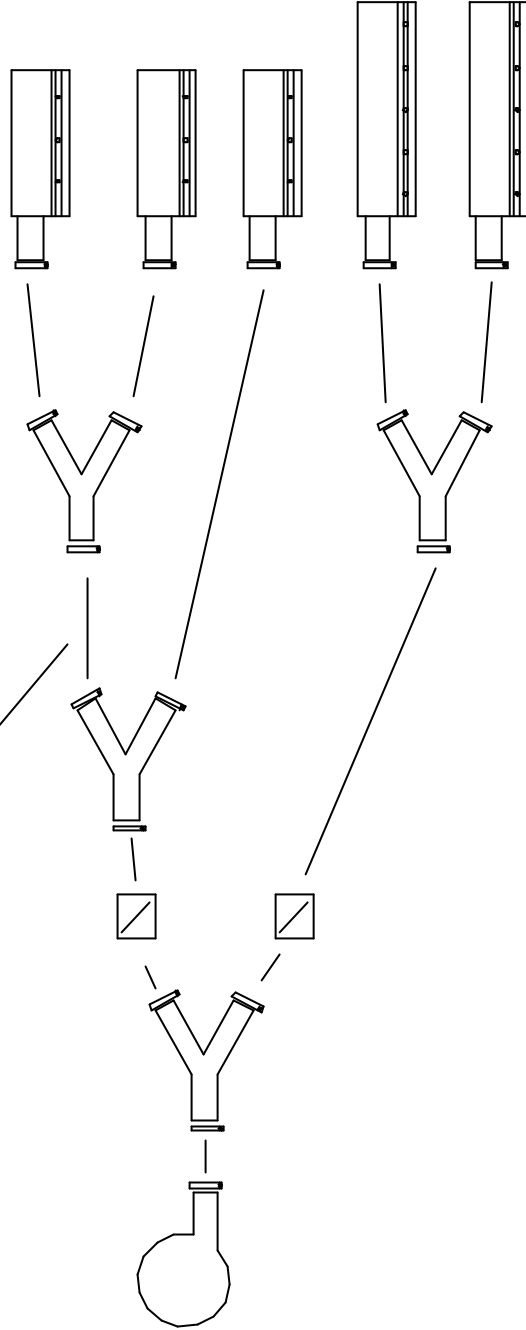


BLOWER

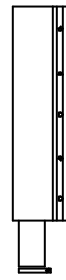


Y-JOINER

76mm ID HOSE



BUTTERFLY VALVE



AIR KNIFE ASSEMBLY



SUPERCLAMP or HOSECLIP

NOT TO SCALE

THRD ANGLE PROJECTION

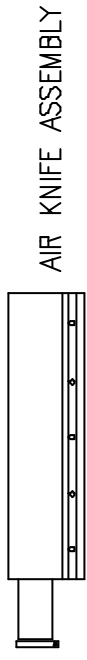
SCALE: NONE	CKD.: N/A
DRAWN: PMH	APPR.: N/A
DATE: 23/16/2014	PROJECT No.: AMCOR-BEVERAGE
DWG. No. A4 SECO02A	
REV. 1	

CUSTOMER:	2 x 300 + 3 x 100 mm KNIVES
TITLE:	COMPONENTS

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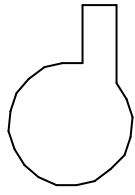
No.	REVISION	BY	DATE



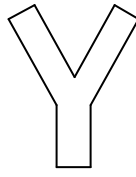
AIR KNIFE ASSEMBLY



SUPERCLAMP or HOSECLIP

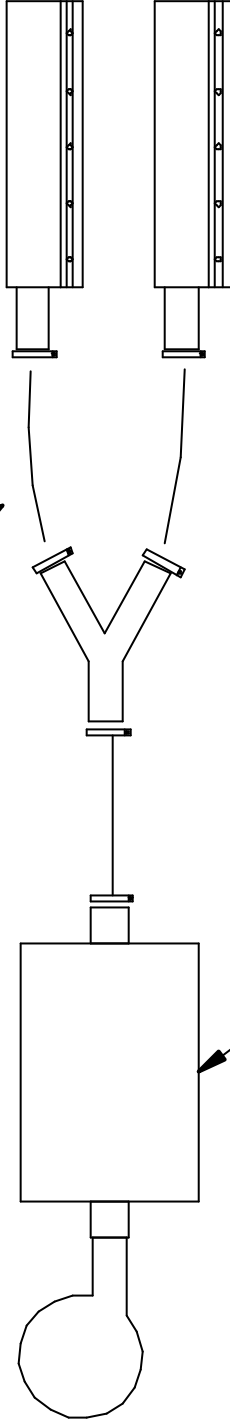


BLOWER



Y JOINER

76mm ID HOSE



Heater

NOT TO SCALE

THIRD ANGLE PROJECTION

SCALE: NONE	CKD: N/A
DRAWN: PRM	APPR: N/A
DATE: 4/8/11	PROJECT No.: .
DWG. No. A4 SEC006	REV. 1

CUSTOMER: VARIDUS
TITLE: BOTTLE LINE COMPONENTS FOR TWO KNIFE ASSEMBLIES

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 HURL NU-WAY PTY LTD ACN 000 014 839
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REVISION	BY	DATE
1	JMS	15.5.01
DRAWING WAS FILED AS 'r0035_TARAC knife set'		